

IN THE CLAIMS:

- 1 1. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the method comprising:
3 receiving a write operation, ~~wherein the write operation identifies -directed to a~~
4 ~~file for the write operation to be performed on;~~
5 ~~determining that a volume storing the file has buffer leakage detection activated;~~
6 creating a data buffer associated with the write operation; and
7 ~~in response to determining the volume has buffer leakage detection activated,~~
8 writing a buffer check control structure to a raw data buffer associated with the data
9 buffer.

- 1 2. (Currently Amended) The method of claim 1 wherein the step of creating the data
2 buffer further comprises: ~~the step of~~
3 ~~.....~~creating the buffer check control structure and the raw data buffer.

- 1 3. (Previously Presented) The method of claim 2 wherein the buffer check control struc-
2 ture comprises a pointer to the raw data buffer.

- 1 4. (Currently Amended) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises ~~the steps of:~~
3 creating the buffer check control structure; and
4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

- 1 5. (Currently Amended) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises ~~the steps of:~~
3 creating the buffer check control structure; and

4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.

1 6. (Original) The method of claim 4 wherein the buffer check control structure com-
2 prises:

3 one or more magic numbers; and
4 a consistency point number.

1 7. (Original) The method of claim 6 wherein the one or more magic number comprises a
2 64-bit value.

1 8. (Original) The method of claim 6 wherein one or more magic number values com-
2 prises two 32-bit values.

1 9. (Original) The method of claim 6 wherein the consistency point number identifies a
2 current consistency point.

1 10. (Original) The method of claim 6 wherein the consistency point number comprises a
2 32-bit value.

1 11. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, ~~the method comprising steps of:~~
3 selecting a data buffer;
4 determining if the selected data buffer includes a buffer check control structure;
5 determining, in response to the selected data buffer including a buffer check con-
6 trol structure, if a consistency point number within the buffer check control structure is
7 correct; and
8 performing, in response to determining that the consistency point number within
9 the buffer check control structure is correct, a write operation of a file system buffer.

1 12. (Original) The method of claim 11 wherein the step of determining if the data buffer
2 comprises a buffer check control structure further comprises a step of determining if one
3 or more magic values are within the data buffer.

1 13. (Original) The method of claim 12 wherein one or more magic values comprise a 64-
2 bit magic number.

1 14. (Original) The method of claim 12 wherein one or more magic values further com-
2 prises two 32-bit magic numbers.

1 15. (Currently Amended) The method of claim 11 wherein the step of determining if the
2 consistency point number is correct further comprises: ~~the step of~~
3 | determining if the consistency point number within the buffer check control struc-
4 ture equals a consistency point number identifying a current consistency point.

1 16. (Currently Amended) The method of claim 11 wherein the step of performing a write
2 | operation further comprises: ~~a step of~~
3 | writing a set of raw data within the data buffer to a disk.

1 17. (Original) The method of claim 16 wherein the raw data comprises the buffer check
2 control structure.

1 18. (Currently Amended) The method of claim 16 wherein the step of performing the
2 | write operation further comprises: ~~a step of~~
3 | removing the buffer check control structure from the raw data before writing the
4 file system buffer to disk.

1 19. (Currently Amended) The method of claim 16 wherein the step of performing the
2 write operation comprises: ~~the step of~~
3 ~~.....~~ writing only the raw data within the file system buffer to disk.

1 20. (Currently Amended) A system for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the system comprising:
3 means for receiving ~~a write operations~~operation, wherein the write operation ~~iden-~~
4 ~~tifies a file for the write operation to be performed on;~~
5 ~~determining that a volume storing the file has buffer leakage detection activated;~~
6 means for creating a data buffer associated with the write ~~operations~~operation;
7 and
8 ~~in response to determining the volume has buffer leakage detection activated,~~
9 means for writing a buffer check control structure to a raw data buffer associated with the
10 data buffer.

1 21. (Previously Presented) A computer readable media, comprising:
2 the computer readable media containing instructions for execution on a processor
3 for the practice of a method of detecting leaked buffer writes between a first consistency
4 point and a second consistency point, the method having the steps of,
5 receiving a write operation directed to a file, ~~wherein the write operation identi-~~
6 ~~fies a file for the write operation to be performed on;~~
7 ~~determining that a volume storing the file has buffer leakage detection activated;~~
8 creating a data buffer associated with the write operation; and
9 ~~in response to determining the volume has buffer leakage detection activated,~~
10 writing a buffer check control structure to a raw data buffer associated with the data
11 buffer.

1 22. (Currently Amended) An apparatus configured to detect leaked buffer writes be-
2 tween a first consistency point and a second consistency point, the apparatus comprising:
3 a storage system to receive a write operation, wherein the write opera-
4 tion identifies a file for the write operation to be performed on;
5 a storage operating system to determine that a volume storing the file has buffer
6 leakage detection activated;
7 a data buffer created to associate with the write operation; and
8 a buffer check control structure to write to a raw data buffer associated with the
9 data buffer, in response to storage operating system determining the volume has buffer
10 leakage detection activated.

1 23. (Previously Presented) The apparatus of claim 22 wherein the data buffer created to
2 associate with the write operations comprises the buffer check control structure and the
3 raw data buffer.

1 24. (Previously Presented) The apparatus of claim 23 wherein the buffer check control
2 structure comprises a pointer to the raw data buffer.

1 25. (Previously Presented) The apparatus of claim 22 wherein the buffer check control
2 structure to write to a raw data buffer associated with the data buffer further comprises
3 the buffer check control structure to overwrite a portion of the raw data buffer.

1 26. (Previously Presented) The apparatus of claim 22 wherein the buffer check control
2 structure to write to the raw data buffer further comprises the buffer check control struc-
3 ture to associate with the raw data buffer in a contiguous block of memory.

1 27. (Previously Presented) The apparatus of claim 26 wherein the buffer check control
2 structure comprises:
3 one or more magic numbers; and

4 a consistency point number.

1 28. (Currently Amended) The apparatus of claim 27 wherein the one or more magic
2 | number values comprises a 64-bit value.

1 29. (Previously Presented) The apparatus of claim 27 wherein one or more magic num-
2 ber values comprises two 32-bit values.

1 30. (Previously Presented) The apparatus of claim 27 wherein the consistency point
2 number is configured to identify a current consistency point.

1 31. (Previously Presented) The system of claim 27 wherein the consistency point num-
2 ber comprises a 32-bit value.

1 Please add new claims 32 *et al.*

1 32. (New) A method for detecting leaked buffer writes between a first consistency point
2 and a second consistency point, the method comprising:

3 receiving a write operation, wherein the write operation identifies a data container
4 for the write operation to be performed on;

5 determining that a volume storing the data container has buffer leakage detection
6 activated;

7 creating a data buffer associated with the write operation; and

8 in response to determining the volume has buffer leakage detection activated,

9 writing a buffer check control structure to a raw data buffer associated with the data
10 buffer, wherein the buffer check control structure has one or more values to uniquely

11 identify the buffer check structure and a value identifying the first consistency point.

1 33. (New) The method of claim 32, wherein the data container is a virtual disk or a file.

1 34. (New) The method of claim 32, wherein the first consistency point is the current con-
2 sistency point.

3
4 35. (New) The method of claim 32, wherein the step of creating the data buffer further
5 comprises:

6 creating the buffer check control structure and the raw data buffer.

1 36. (New) The method of claim 32, wherein the step of writing the buffer check control
2 structure to the raw data buffer further comprises:

3 creating the buffer check control structure; and

4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

- 1 37. (New) The method of claim 32, wherein the step of writing the buffer check control
2 structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.